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I, JONNE YABSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PR 3455 for a patent by TOM KUSIC filed on 01 March 2001.

WITNESS my hand this
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PROVISIONAL SPECIFICATION

Invention title: TANDEM TILT ROTOR VERTICAL TAKE-OFF AIRCRAFT

The invention is described in the following statement:

This invention relates to the vertical take-off field of aviation.

Many versions of helicopters using tandem rotors have been constructed to date. What has been common to all such helicopters is that the lifting rotors have had to have variable pitch blades to allow control of the helicopters.

This invention overcomes the need for using variable pitch blades while still allowing the aircraft to be controlled, and allowing it to move forward, rearward, and side to side by providing an aircraft as follows:

An aircraft with a main body, a primary lifting mechanism connected to the aircraft such that the primary lifting mechanism is positioned above the main body of aircraft, which primary lifting mechanism is connected to the main body of the aircraft such that the primary lifting mechanism can be tilted in a plurality of directions and angles, relative to the main body of the aircraft, including the ability to be tilted from side to side, using a tilt enabling joint with attachments that enable tilting to occur in a controlled manner, with a secondary lifting mechanism connected to the aircraft, which secondary lifting mechanism is connected to the main body of the aircraft such that the secondary lifting mechanism is able to be tilted in a plurality of directions and angles relative to the main body of the aircraft, including the ability to be tilted from side to side, using a tilt enabling joint with attachments that enable tilting to occur in a controlled manner, and which secondary lifting mechanism can be tilted in a plurality of directions independently of the primary lifting mechanism, with the primary lifting mechanism and the secondary lifting mechansim arranged in tandem order above the main body of the aircraft.

In one form of the invention, the primary lifting mechanism consists of a rotor with a plurality of blades connected to the rotor, and an engine assembly which is used as a means to rotate the said rotor of the primary lifting mechanism, with the blades used to force air in a downward direction when the said rotor of the primary lifting mechanism is rotated.

In one form of the invention, the secondary lifting mechanism consists of a rotor with a plurality of blades connected to the rotor of the secondary lifting mechanism, and an engine assembly which is used as a means to rotate the said rotor of the secondary lifting mechanism, with the blades used to force air in a downward direction when the rotor of the secondary lifting mechanism is rotated.

In one form of the invention the primary lifting mechanism has a single engine.

In another form of the invention the primary lifting mechanism of the aircraft has a plurality of engines.

In one form of the invention the secondary lifting mechanism has a single engine.

In another form of the invention the secondary lifting mechanism of the aircraft has a plurality of engines.

In one form of the invention the secondary lifitng mechanism is in the form of a gas turbine jet engine, with the said gas turbine jet engine able to force exhaust gases from the gas turbine jet engine to move in a downward direction.

In one form of the invention the secondary lifitng mechanism is in the form of a plurality of gas turbine jet engines, with the said gas turbine jet engines being able to force exhaust gases from the gas turbine jet engines to move in a downward direction.

In one form of the invention where the gas turbine jet engine forming the secondary lifting mechanism is connected to its respective tilt enabling joint such that the said gas turbine jet engine is able to be rotated horizontally relative to the tilt enabling joint.

In another form of the invention where the gas turbine jet engine forming the secondary lifting mechanism and its respective tilt enabling joint are connected to the main body of the aircraft such that they can jointly be rotated horizontally relative the main body of the aircraft.

In one form of the invention the primary lifting mechansim is located directly above the main body of the aircraft.

In one form of the invention the primary lifting mechansim is positioned in an area in front of the main body of the aircraft.

In one form of the invention the secondary lifting mechanism is positioned directly above the main body of the aircfraft.

In one form of the invention the secondary lifting mechanism is positioned in an area behind the main body of the aircraft.

In one form of the invention the distance between the base of each tilt enabling joint and the main body of the aircraft remains constant.

In another form of the invention the distance between the base of the tilt enabling joint used to connected the primary lifting mechanism to the main body of the aircraft and the main body of the aircraft is able to be varied.

In another form of the invention the distance between the base of the tilt enabling joint used to connect the secondary lifting mechanism to the main body of the aircraft and the main body of the aircraft is able to be varied.

In another form of the invention the distance between the base of the tilt enabling joint that connects the primary lifting mechanism to the main body of the aircraft and the main body of the aircraft is able to be varied and the distance between the base of the tilt enabling joint that connects the secondary lifting mechanism to the main body of the aircraft and the main body of the aircraft is also able to be varied.

In one form of the invention the distance between the base of the tilt enabling joint which is connected to the primary lifting mechanism of the main body of the aircraft and the main body of the aircraft is able to be varied using a telescopic tube assembly.

In one form of the invention the distance between the base of the tilt enabling joint which is connected to the secondary lifting mechanism of the main body of the aircraft and the main body of the aircraft is able to be varied using a telescopic tube assembly.

In another form of the invention, the distance between the base of each said tilt enabling joint and the main body of the aircraft can be varied using telescopic tube assemblies.

In one form of the invention a valve is used to control the telescopic movement of the telescopic tube assembly that is used to allow the distance between the tilt enabling joint that is connected to the primary lifting mechanism and the main body of the aircraft to be varied.

In one form of the invention a valve is used to control the telescopic movement of the telescopic tube assembly that is used to allow the distance between the tilt enabling joint that is connected to the secondary lifting mechanism and the main body of the aircraft to be varied.

In another form of the invention where a telescopic tube assembly is used to connect to the main body of the aircraft the said secondary lifting mechanism and the tilt enabling joint to which the secondary lifitng mechansim is attached, the telescopic tube assembly is connected to the main body such that the telescopic tube assembly can be rotated horizontally relative the main body of the aircraft.

In one form of the invention where the secondary lifting mechansim is attached to the tilt enabling joint to which it is connected such that the said secondary lifting mechanism would be able to be rotated horizontally relative to the tilt enabling joint to which it is connected.

In another form of the invention the secondary lifting mechanism and the tilt enabling joint to which the secondary lifting mechanism is attached are connected to the main body of the aircraft such that they can jointly be rotated relative the main body of the aircraft.

In one form of the invention a moveable vertically disposed fin is connected to the main body of the aircraft.

In one form of the invention the main body of the aircraft is of a constant length.

In another form of the invention the main body of the aircraft has a front section and a rear section, which sections are able to move relative to one another such that the length of the body of the aircraft is able to be varied.

In one form of the invention a plurality of variable pitch fins are connected to the main body of the aircraft.

In one form of the invention where variable pitch fins are connected to the main body of the aircraft, the fins can be moved in unison so that their relative pitches remain constant.

In one form of the invention a lever is used to activate the pitch movement of the said fins during horizontal flight, which lever protrudes from the body of the aircraft and is made to move by the relative airflow caused by horizontal flight of the aircraft.

In one form of the invention where the said lever is used to activate the pitch movement of the said fins during horizontal flight, the lever activates a hydraulic mechanism which in turn causes the pitch of the said fins to vary during horizontal flight.

In one form of the invention where variable pitch fins are connected to the main body of the aircraft, the pitch of a fin on one side of the main body of the aircraft can be varied inversely to the pitch of a fin on the other side of the main body of the aircraft.

Tom Kusic ..... 1/3/2001.....

(Name of Appllicant) (Date)